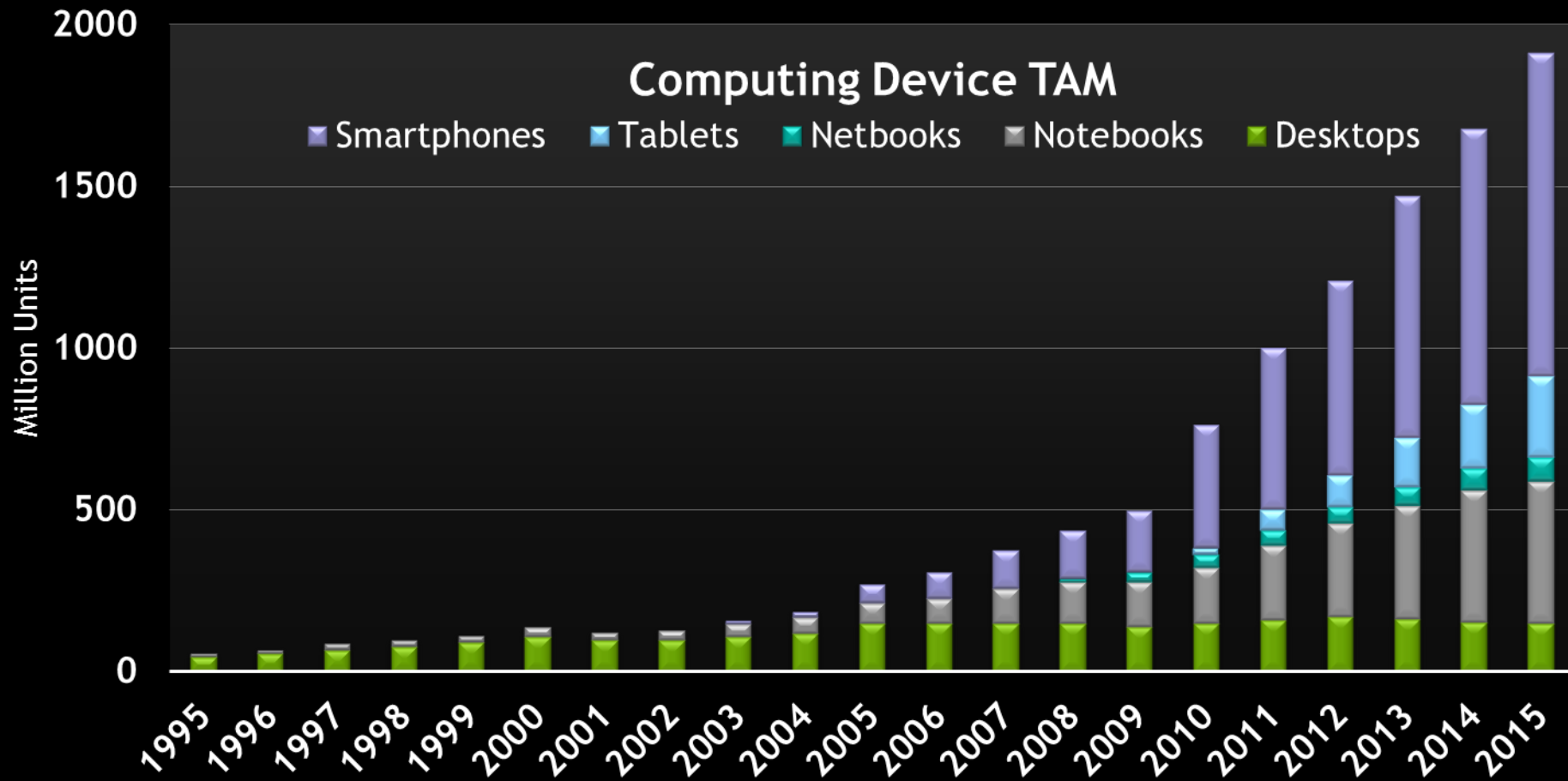




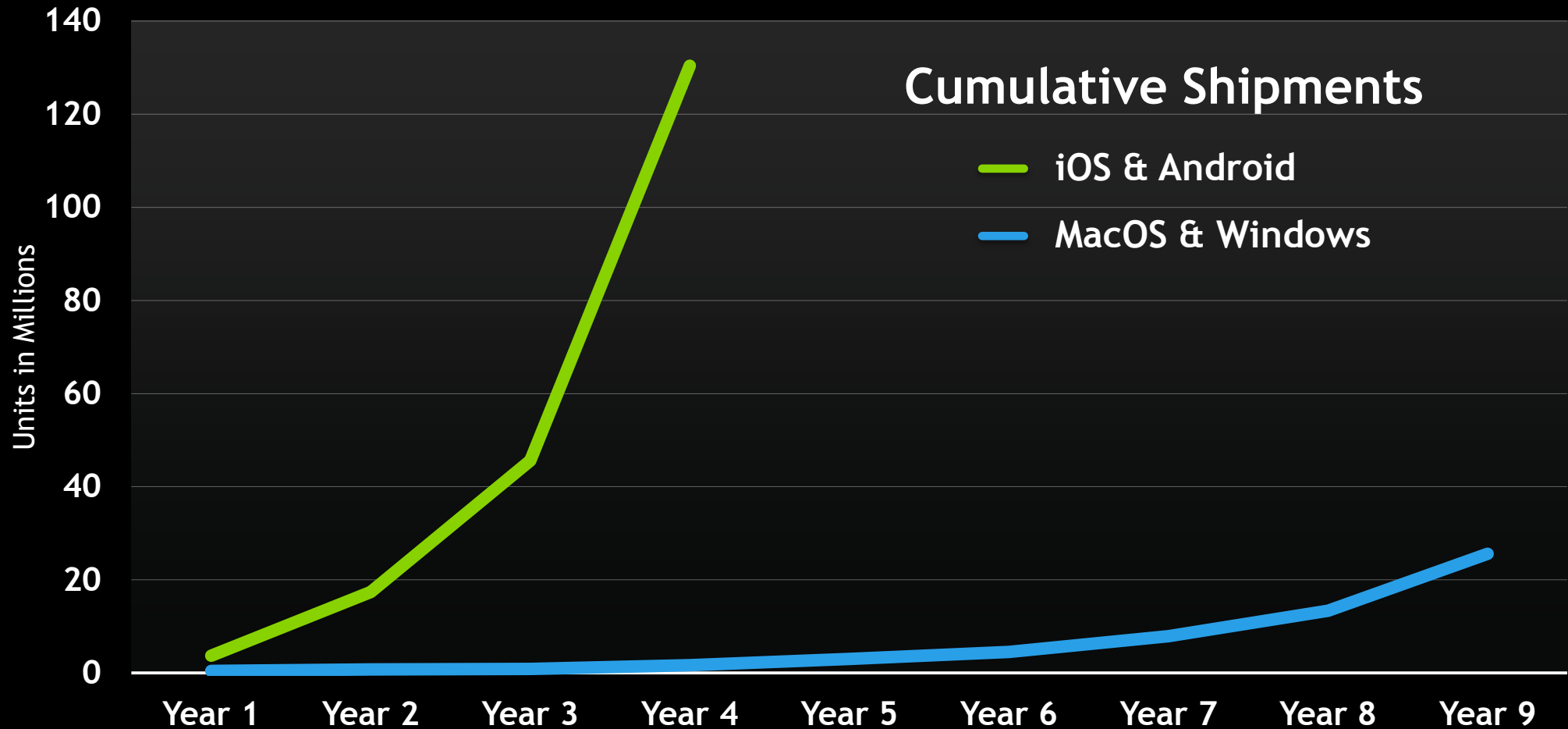
Tegra Tech Overview and Game Development Overview for Tegra

Nayoung Lee
Technical Marketing Manager,
NVIDIA

The Opportunity



Mobile Computing on a Tear



Source: Gartner, Apple, NVIDIA

Tegra 2 Products

- **Tegra 2 Super Phones**

- Moto Atrix 4G, Moto Droid X2, LG Optimus 2X, LG G2X, ...



- **Tegra 2 Tablets**

- Moto Xoom, LG Optimus Pad (G-slate), Samsung Galaxy Tab 10.1, Acer Iconia A500, ASUS Slider & Transformer, Toshiba 10", Dell Streak 7, Lenovo Ideapad... and more

- **Technology Preview of Kal-EI**

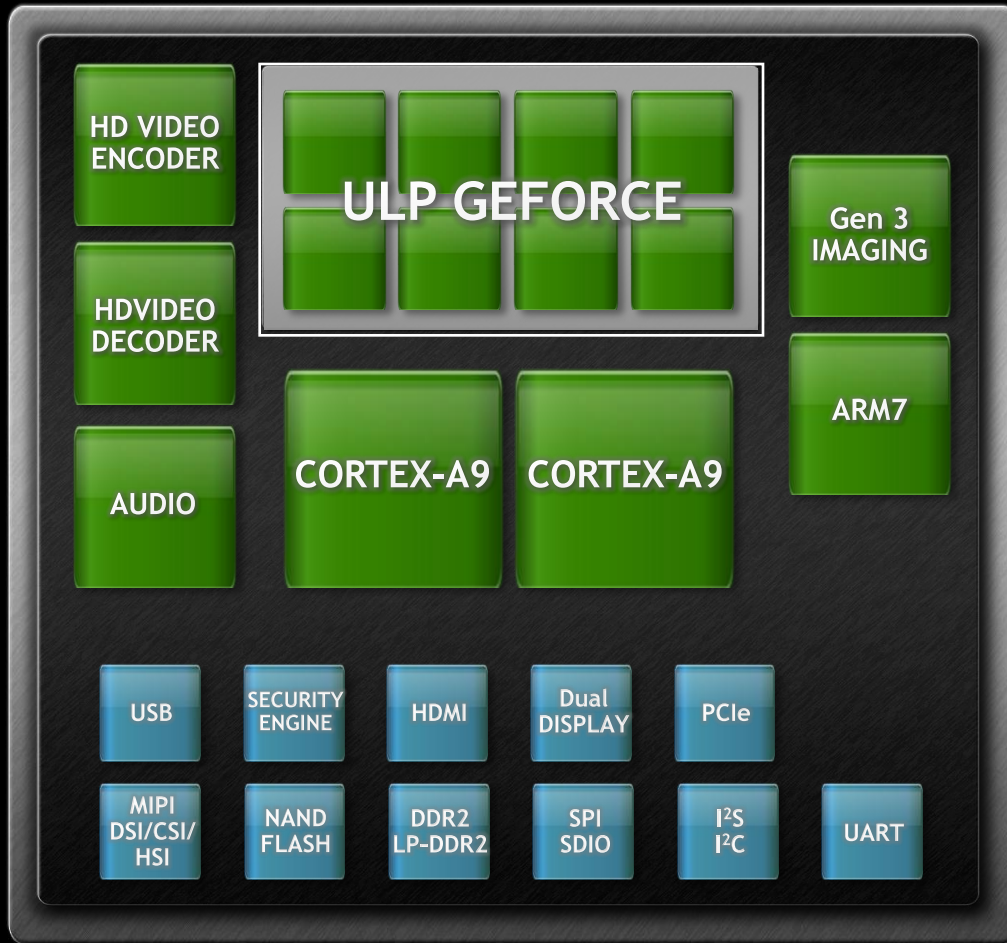
- World's First Mobile Quad Core

Android – Fastest Growing Mobile OS
300M+ units projected by year

2015

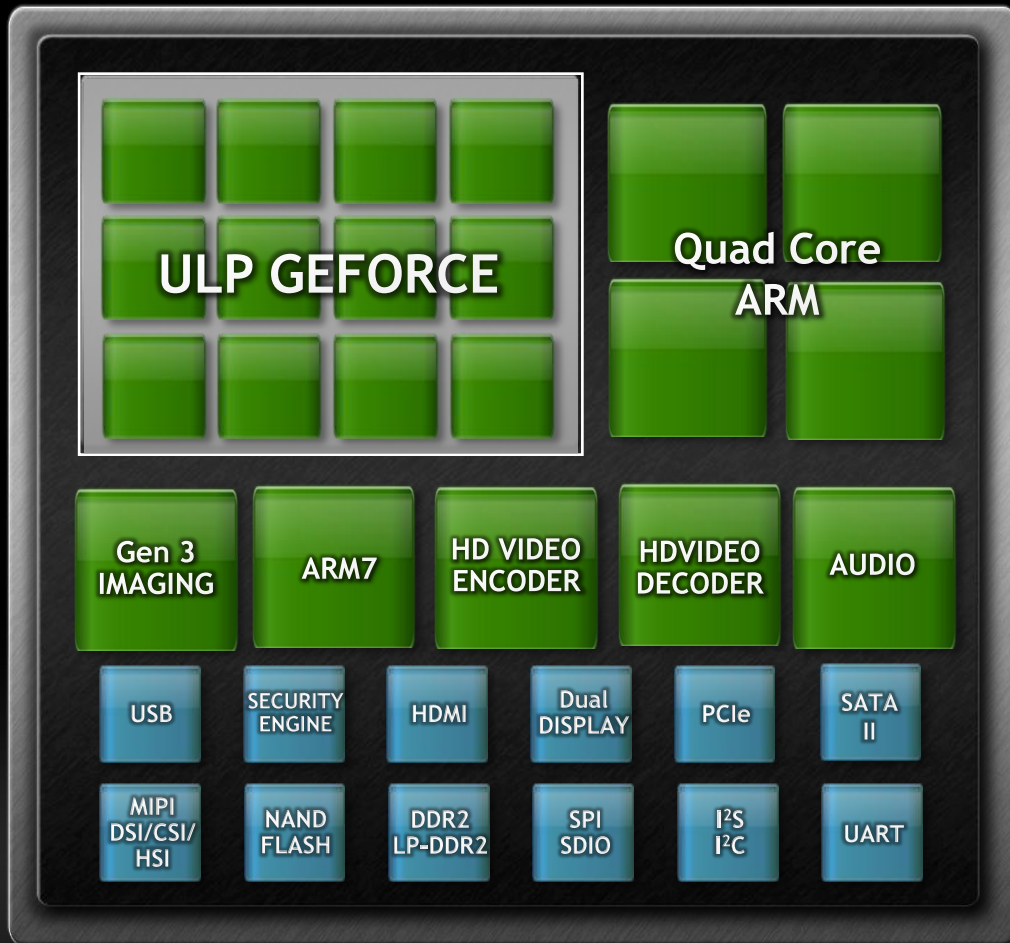


Tegra 2 – Heterogeneous Multi-core



CPU	Dual Cortex-A9, up to 1GHz
VIDEO	1080P 20Mbps H.264
GRAPHICS	8 Core ULP GeForce
MEMORY	LPDDR2 – 600, DDR2 - 667
IMAGING	Ultra High Performance Image Processor
AUDIO	HW Audio
STORAGE	eMMC, NAND, USB

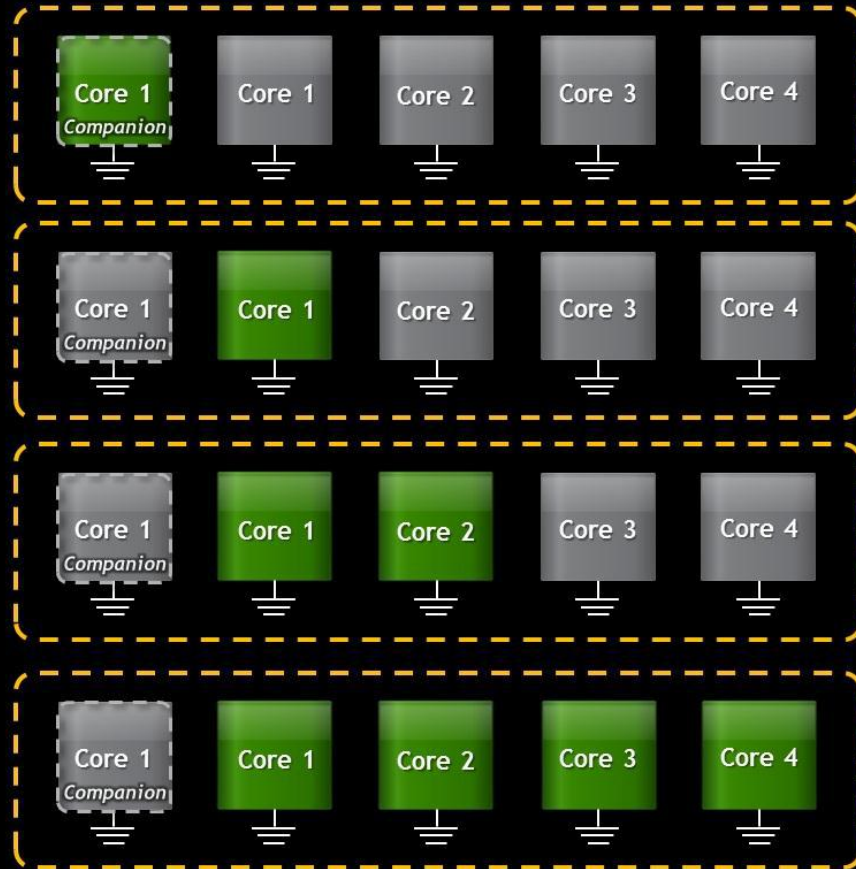
Kal-EI – Independent, Dedicated Processing



CPU	3X Performance <i>Quad Core up to 1.5GHz, NEON</i>
VIDEO	4X Complexity <i>1080i/p High Profile</i>
GRAPHICS	3X Performance <i>Dual Pixel Pipe</i>
MEMORY	3X bandwidth <i>DDR3L up to 1600 data rate</i>
IMAGING	Better noise reduction & color rendition <i>Two simultaneous streams</i>
AUDIO	HD Audio <i>7.1 channel surround</i>
STORAGE	2 - 6X faster <i>e.MMC 4.4 and SATA-II</i>

CPU Hot-Plug

작업량 기반의 CPU 코어의 동적 활성화/비활성화



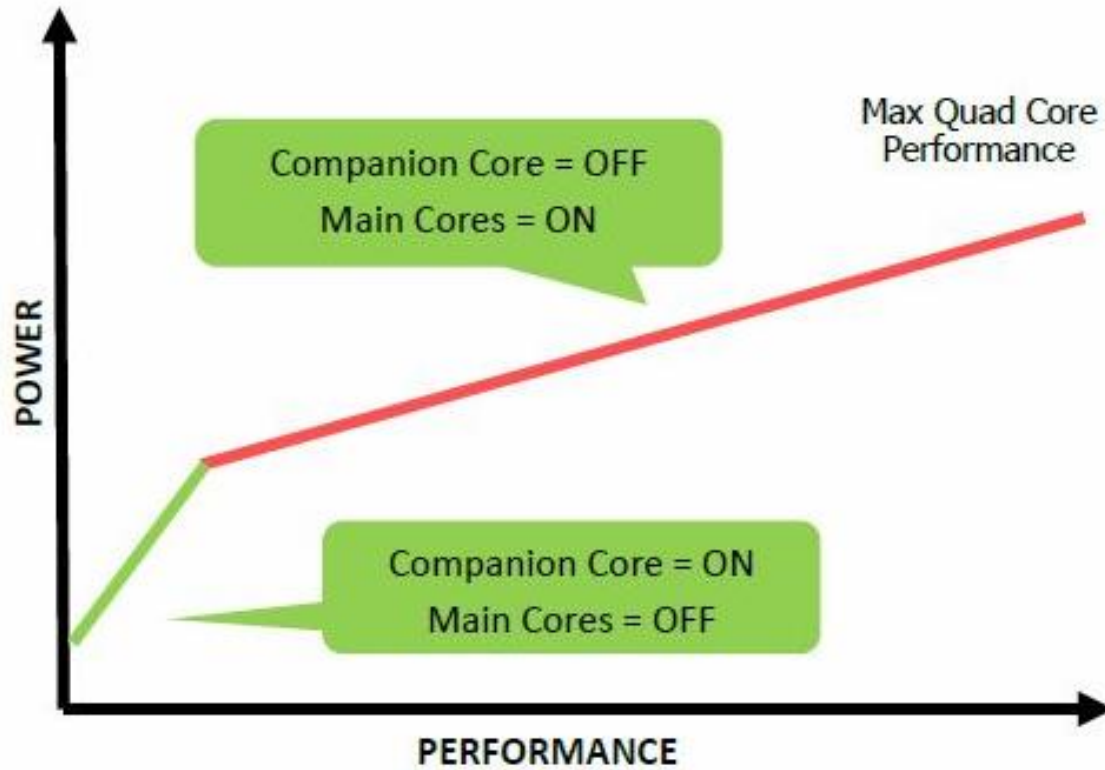
백그라운드 작업, 오디오, 동영상, 이메일 싱크, 소셜 미디어 싱크 등

이메일, 2D 게임, 기본 브라우징, 지도 등 단일 코어 성능

Dual Core: 플래시 지원, 브라우징, 멀티태스킹 화상채팅 등

Quad Core: 콘솔급 게임, 고속 브라우징, 미디어 프로세싱용

CPU Hot-Plug



3D Vision Mobile

Based on Award-Winning Technology



Transferring 3D Vision Technology & Investments to Mobile

Automatic 3D Stereo Magic

- Convert standard OpenGL apps into stereoscopic 3D experience
- No need to modify apps
- Stereo rendering handled entirely by NVIDIA graphics driver
- Other graphics vendors suffer stability & poor quality issues

OpenGL Apps

NVIDIA Driver

Auto Stereo

Tegra

3D Display

Top Games & Apps Available Now



Google Earth



Samurai II Vengeance



UE3 Citadel



Dungeon Defender



Shadow Gun



Bang Bang Racing



The Most Comprehensive Content



All Tegra Zone Titles
(50+ in 2011)



Top Mainstream Apps



Top Games

All In One Convenient Location

- Tegra Zone Showcase App, Over 620,000 Installs
- 4 Star Rating in Android market
- Thousands of User reviews
- Loyal Users: Multiple visits per week

Tegra Zone



TegraZone – Tegra Android Market



Accessible from phone, tablet, PC



Spinkle



ShadowGun (coming soon)

<http://tegrazone.com/>

Tegra Developers' Zone



<http://developer.nvidia.com/tegra>

- OS Support packs
 - Android
 - Linux
 - Windows CE
- SDK's, demos, apps
- Docs
- Development Tools
- Public support forums/community
- Access to the Tegra board store

The screenshot shows the NVIDIA Developer Zone website for Tegra. At the top, there is a navigation bar with the NVIDIA logo, 'DEVELOPER ZONE', and a search bar. Below this is a secondary navigation bar with links for 'NEWS', 'DOWNLOADS', 'FORUMS', 'PROJECTS', and 'GET TEGRA'. The main content area is titled 'TEGRA' and includes a 'GET STARTED' sidebar with links for 'WHAT IS TEGRA?', 'DOWNLOADS', and 'FORUMS'. The central banner features a smartphone and the text 'BREAKTHROUGH MOBILE CONTENT POWERED BY NVIDIA TEGRA'. Below the banner are sections for 'TWITTER', 'LATEST NEWS', 'LATEST PROJECTS', and 'FAQ'. The footer contains contact and legal information.



Tegra Developer Tools

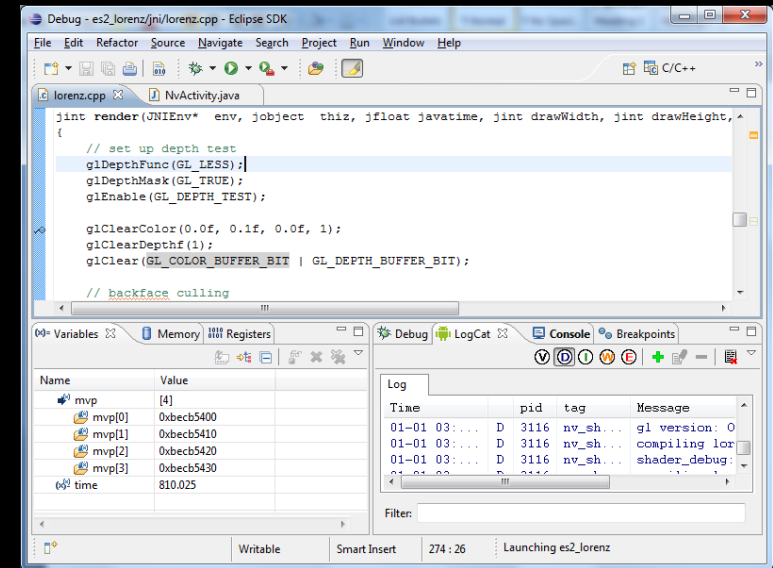
Multi-Core CPU Debugging

Eclipse (Windows/Linux/OSX)

- Debug Manager for Android (NVDM)
- Native code debugging
- Socket and named pipe (UDS) support

Visual Studio Integration (Coming Soon)

- WinGDB Mobile for Tegra
- NDK-Build and makefile support
- Java and native debugging
- Build and application management



Debug Manager for Android

<http://developer.nvidia.com/tegra-resources>

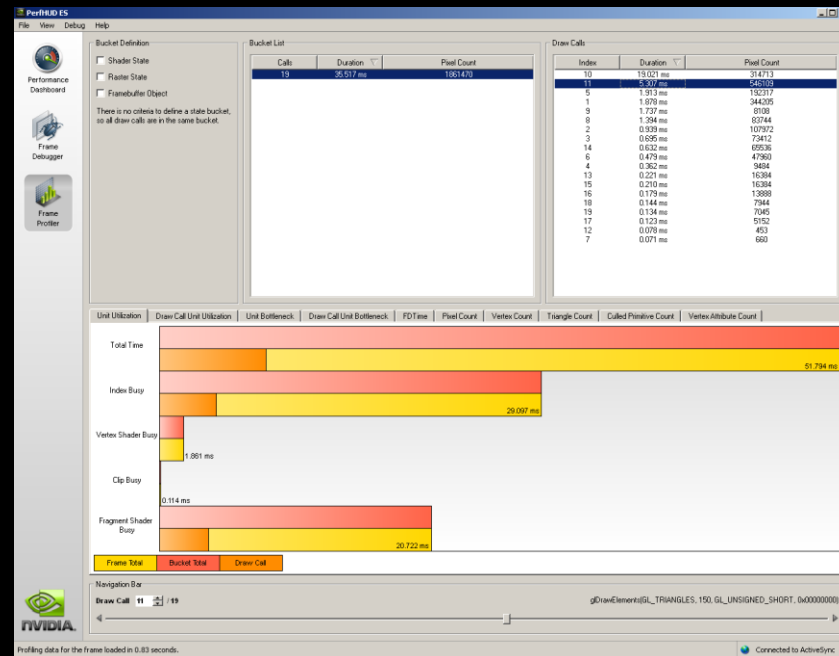


Tegra Developer Tools

Graphics Debugging and Profiling

PerfHUD ES

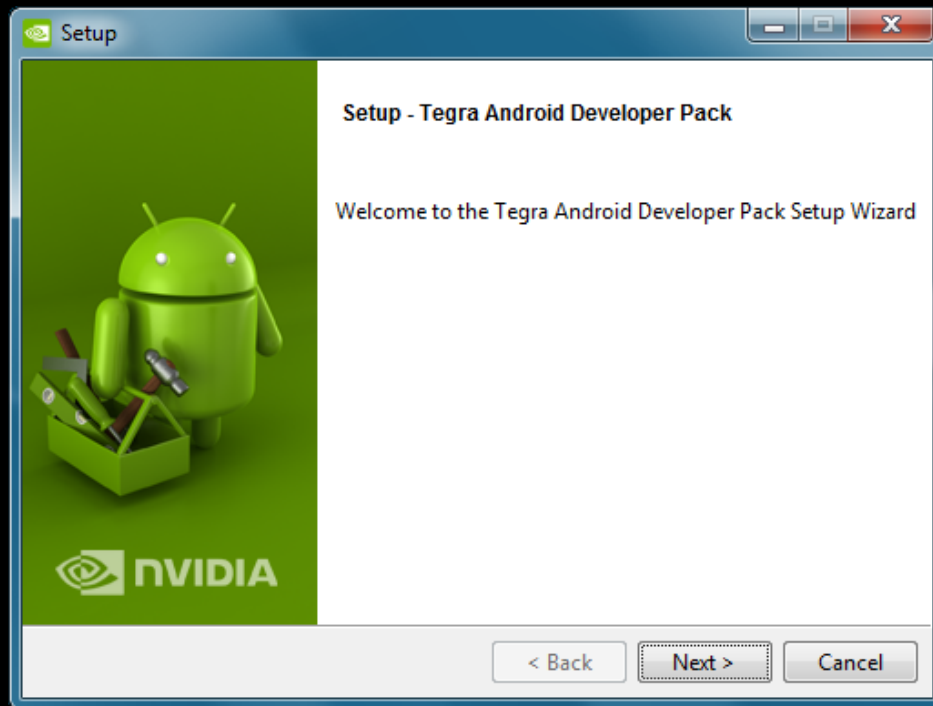
- API and Frame debugging
- Performance monitoring
- Directed tests and experiments
- Frame profiling and automated bottleneck analysis
- Runtime Shader Editing



<http://developer.nvidia.com/phes>

Tegra Android™ Development Pack

**“All-in-one” installer for Android NDK development under Eclipse
Android debugging in minutes, not hours**



Includes:

- Tegra OS Images (Gingerbread / Honeycomb)
- Android SDK
- Android NDK
- Java Development Kit
- Cygwin
- Apache Ant
- PerfHUD ES
- OProfile
- Eclipse (including ADT and CDT plug-ins)
- Nvidia Debug Manager for Android (NVDM)
- Tegra SDK Samples
- Flash Android OS Images to the Tegra DevKit
- Import + compile Tegra SDK Samples in Eclipse

<http://developer.nvidia.com/tadp>